INSTRUCTION MANUAL
POWER SUPPLY
MODELS 3569 AND 3569M

SYSTEMS RESEARCH CORPORATION

INSTRUCTION MANUAL
POWER SUPPLY
MODELS 3569 AND 3569M

SYSTEMS RESEARCH CORPORATION

2309 Pontius Avenue

Los Angeles, California

Telephone (213) 477-4573

March 1967

CONTENTS

POWER SUPPLY, MODELS 3569 AND 3569M

1.0	GENERAL	1
	1.1 Introduction	1
	1.2 Theory of Operation	1
	1.3 Operational Specifications	2
2.0	MECHANICAL	3
3.0	PARTS LIST	4

DRAWINGS

Power Supply, Models 3569 and 3569M Component Board 9

Power Supply, Models 3569 and 3569M Schematic 10

WARRANTY

SYSTEMS RESEARCH CORPORATION guarantees this equipment to be free from defects in material and workmanship, for one year from date of delivery, under normal use and service. Any repairs or replacements (which alternative chosen by the Seller) will be carried out at the facilities of SYSTEMS RESEARCH CORPORATION, transportation charges prepaid, and which are, after examination, disclosed to the Seller's satisfaction to be thus defective. Should a defect be trivial, the Purchaser will be expected to perform first echelon repairs using materials supplied by SYSTEMS RESEARCH CORPORATION. Subsequent repairs within the period of warranty will be negotiated separately.

If a defect should result from a design error, and both SYSTEMS RESEARCH CORPORATION and the Purchaser recognize this error as the cause of the defect, SYSTEMS RESEARCH CORPORATION will correct the error to meet the specifications under which the equipment was delivered. SYSTEMS RESEARCH CORPORATION retains the right to request return of the defective equipment to the company's facilities for repair, should this course be deemed necessary or advisable.

SYSTEMS RESEARCH CORPORATION reserves the right to make changes in design at any time without incurring any obligation to install same on units previously purchased.

This warranty does not apply to any equipment, or portion thereof, which shall have been repaired or altered, except by the Seller, or which becomes defective through misuse, mishandling, or environmental conditions exceeding specifications, after delivery.

No other warranties, expressed or implied, shall apply to any equipment sold under this warranty, and the foregoing shall constitute the Purchaser's sole rights under the agreed terms of this warranty.

In no circumstances shall SYSTEMS RESEARCH CORPORATION assume liability for loss, damage or consequential expense arising directly or indirectly from the use of its equipment, separately, or in combination with other equipment.

SYSTEMS RESEARCH CORPORATION

INSTRUCTION MANUAL
POWER SUPPLY
MODELS 3569 AND 3569M

1.0 GENERAL

1.1 Introduction

Systems Research Corporation's Model 3569 is an all-silicon solid-state, regulated and isolated Power Supply for transducer excitation and general laboratory use. Circuit design and components are commensurate with state-of-art, and will provide long trouble-free performance, excellent regulation and stability. Isolation is obtained by careful component layout, and multiple shielding of the power transformer.

1.2 Theory of Operation

SRC Model 3569 is a regulated Power Supply with a continuously variable output voltage from 0 to 30 VDC in two ranges at currents up to 500 ma.

A box-shielded transformer is used to electrically isolate the power supply from the power line. Referring to the schematic, the power transformer T_1, provides two secondaries, one supplies voltage to Q_1 through a Bridge rectifier, the other secondary feeds diodes D_5, D_6, D_7 and D_8 to provide DC power for the main regulator and the reference supply.

The main regulator circuit is of the series type, the control transistor being Q_1.

Regulation is obtained by comparing the output voltage to a stable reference voltage, this is done by the difference amplifier Q_5 and Q_6.

Q_8, Q_9 and Z_2 comprise a voltage regulator supplying a constant voltage to the difference amplifier and voltage amplifier Q_4, improving the stability of the amplifier and therefore the power supply.

The output of the difference amplifier is further amplified by Q_4, a voltage amplifier, and then applied to current amplifiers Q_3 and Q_2, which in turn supply the controlling bias current to Q_1. As the output voltage attempts to change, the base of Q_6 will detect this variation and the difference amplifier will create an error signal which is fed to Q_4, Q_3, Q_2 and Q_1, the signal at Q_1 will be 180 degrees out of phase with the output voltage and will oppose the initial change.

The reference circuit is an all-silicon temperature compensated, constant voltage regulator. Here the comparison element is a temperature-compensated reference amplifier Q_{13}. An error signal is obtained from Q_{13} and fed to Q_{11} and Q_{12}, the series-pass element, thus we obtain a very stable reference voltage.

1.3 Operational Specifications

1.3.1 Electrical

Output Voltage	0 to 30 in two ranges
Output Current	0 to 500 ma
Output Ripple	Less than 200 μv P-P
Regulation	Line 0.01% or 1.5 mv, whichever is greater, for 10% line change. Load 0.01% or 1.5 mv, whichever is greater, no load to full load.
Operating Temperature	35°F to 120°F.

Thermal Stability	0.005% over the entire temperature range.
Power Input	105 to 125 VAC 60 Hz
Isolation	10K meg to ground 0.1 pf to AC line
Overload Protection	Short-circuit protection Current limited to less than 800 ma.
Long-Term Stability	0.05% or 5 mv for 8 hours

2.0 MECHANICAL

2.1 SRC Model 3569 is a self-contained unit and is provided with a 6-foot, 3-wire power cord to be plugged into a standard 115 vac outlet.

Excitation and sense outputs are provided on the front panel, sense leads are normally strapped to the excitation leads, at the power supply end; for remote error sensing the jumpers should be removed and the sense leads transferred to the load.

3.0 PARTS LIST

SYSTEMS RESEARCH CORPORATION

PARTS LIST

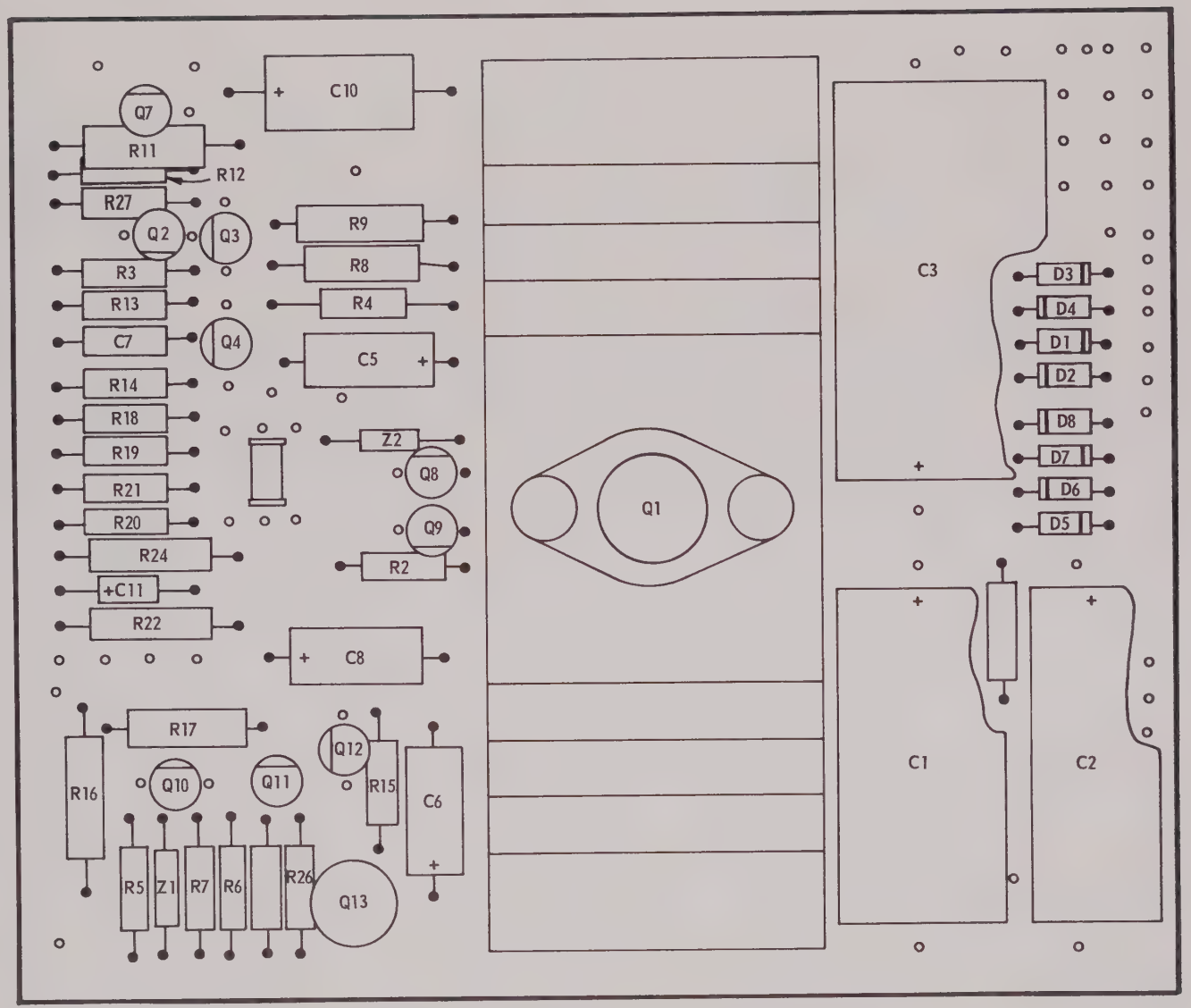
MODELS 3569 AND 3569M

Part No.	Quantity	Description	Mfg.	Model No.
	1	Chassis	SRC	3569-1
	1	Cover	SRC	3569-2
	1	Front Panel	SRC	3569-11
	1	Heat Sink	SRC	3569-5
	1	P.C. Board Artwork	SRC	3569-6
(assy)	1	Schematic	SRC	3569-7
R1	1	Resistor 1.5K ohm 1/2W CC	Ohmite	
R2	1	Resistor 15K ohm 1/2W CC	Ohmite	
R3	1	Resistor 470 ohm 1/2W CC	Ohmite	
R4	1	Resistor 3.3K ohm 1/2W CC	Ohmite	
R5	1	Resistor 4.7K ohm 1/2W CC	Ohmite	
R6	1	Resistor 3.3M ohm 1/2W CC Typ.	Ohmite	
R7	1	Resistor 15K ohm 1/2W CC	Ohmite	
R8	1	Resistor 10K ohm 3W WW	Ohmite	
R9	1	Resistor 2.5K ohm 3W WW	Ohmite	

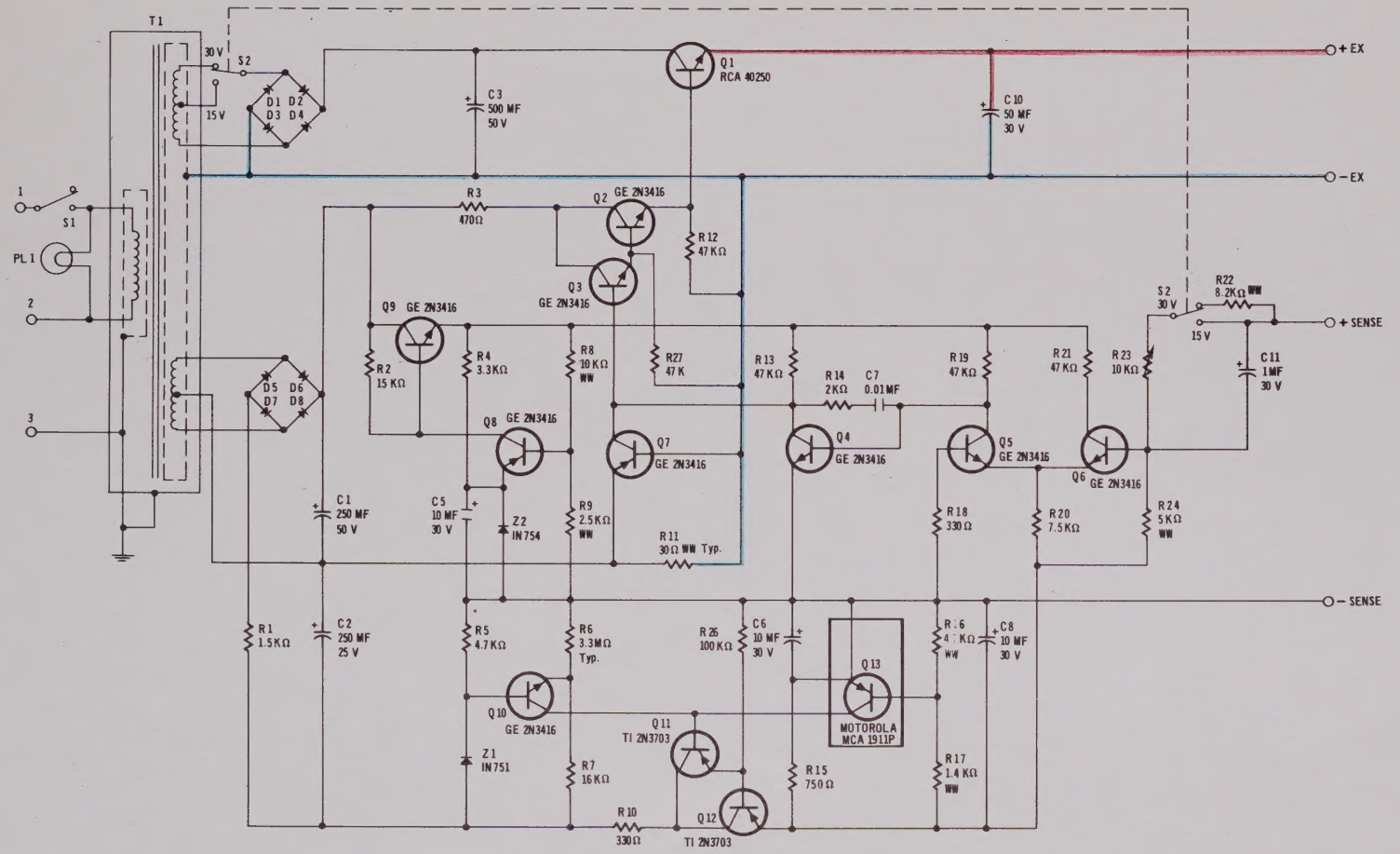
Part No.	Quantity	Description	Mfg.	Model No.
R10	1	Resistor 330 ohm 1/2W CC	Ohmite	
R11	1	Resistor 30 ohm 3W WW	Ohmite	
R12	1	Resistor 47K ohm 1/2W CC	Ohmite	
R13	1	Resistor 47K ohm 1/2W CC	Ohmite	
R14	1	Resistor 2K ohm 1/2W CC	Ohmite	
R15	1	Resistor 750 ohm 1/2W CC	Ohmite	
R16	1	Resistor 4.7K ohm 3W WW	Ohmite	
R17	1	Resistor 1.4 ohm 3W WW	Ohmite	
R18	1	Resistor 330 ohm 1/2W CC	Ohmite	
R19	1	Resistor 47K ohm 1/2W CC	Ohmite	
R20	1	Resistor 7.5K ohm 1/2W CC	Ohmite	
R21	1	Resistor 47K ohm 1/2W CC	Ohmite	
R22	1	Resistor 8.2K ohm 3W WW Typ	Ohmite	
R23	1	Resistor Pot 10K ohm 10 turn	VOAK	57
R24	1	Resistor 5K ohm 3W WW Typ	Ohmite	
R26	1	Resistor 100K ohm 1/2W CC	Ohmite	

Part No.	Quantity	Description	Mfg.	Model No.
C1	1	Capacitor 250 MF 50V	CDE	BR250-50
C2	1	Capacitor 250 MF 25V	CDE	BR250-25
C3	1	Capacitor 500 MF 50V	CDE	BR500-50
C5, C6	2	Capacitor 10 MF 30V		
C7	1	Capacitor 0.01 MF 50V		
C8		Capacitor 10 MF 30V		
C10	1	Capacitor 50 MF 35V		
C11	1	Capacitor 1 MF 35V		
D1-D8	8	Diode silicon	Semtech	SC-1
Z1	1	Diode Zener	Motorola	IN751
Z2	1	Diode Zener	Tex. Inst.	IN754
Q1	1	Transistor	RCA	40250
Q2-Q10	9	Transistor	G. E.	2N3416
Q13	1	Transistor	Motorola	MCA1911P
Q11, Q12	2	Transistor	Tex. Inst.	2N3703
T1	1	Transformer	SRC	3569-8
J1-J2	2	Terminal Jack (Red)	H. H. Smith	111-102
J3-J4	2	Terminal Jack (Black)	H. H Smith	111-103
	1	Switch	Alcoswitch	MST-115D
	1	Pilot Light (Red)	Leecraft	36CN2111
	1	Switch	Alcoswitch	MST-215N
	4	Clinch Nut	Useco	1591A
	2	Clinch Nut	Useco	1530B 3/16
	1	Grommet	Gen. Cement	1043-C

Part No.	Quantity	Description	Mfg.	Model No.
	1	Power Cord	Beldon	17408
	4	Rubber Feet 0.600 Dia	H. H. Smith	
	4	Nut Insert No. 4-40	Southco	74-11-104-13
	2	Screw Flat Hd No. 6-32 × 1/4 Lg		
	2	Screw Pan Hd No. 6-32 × 3/8 Lg		
	2	Screw Pan Hd No. 6-32 × 1/4 Lg		
	2	Screw Pan Hd No. 4-40 × 7/16 Lg		
	5	Screw Pan Hd No. 4-40 × 1/4 Lg		
	2	Screw Pan Hd No. 4-40 × 3/8 Lg		
	1	Screw Flat Hd No. 4-40 × 1/4 Lg		
	4	Screw Flat Hd No. 4-40 × 3/16 Lg		
	2	Screw Truss Hd No. 4-40 × 5/16 Lg		
	2	Nut Hex No. 4-40		
	9	Washer Flat No. 4		
	6	Washer Splitlock No. 4		
	4	Washer Flat No. 6		
	2	Washer Splitlock No. 6		



POWER SUPPLY COMPONENT BOARD, MODELS 3569 and 3569M



SYSTEMS RESEARCH CORPORATION
2309 PONTIUS AVENUE, LOS ANGELES, CALIFORNIA

TITLE: POWER SUPPLY SCHEMATIC, MODELS 3569 and 3569M
SERIAL NOS. 10,000 TO 10,500

DATE: MARCH 1967

www.manualsplus.com
1033251